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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/509,752      | 09/30/2004  | Norifumi Hasegawa    | KON-C483            | 8308             |

7590 02/05/2007  
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Fourth Floor  
625 Slaters Lane  
Alexandria, VA 22314-1176

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| EXAMINER |
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NGUYEN, KHANH TUAN

|          |              |
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| ART UNIT | PAPER NUMBER |
|----------|--------------|

1751

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 02/05/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                               |                                    |  |
|------------------------------|-------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/509,752 | Applicant(s)<br>HASEGAWA, NORIFUMI |  |
|                              | Examiner<br>Khanh T. Nguyen   | Art Unit<br>1751                   |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/30/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08).         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The preliminary amendment filed on 09/30/2004 is entered. Claims 1-18 are currently pending.

#### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being unpatentable over Wachsman et al. (U.S Pat 6,235,417 hereinafter, "Wachsman").

Regarding claims 1 and 7, Wachsman discloses a two-phase proton and electron conductor, where a proton conductor contains the group consisting of alkali earth metal and element selected from the group consisting of Y, Yb, In, Gd, Nd, Eu, Sm and Tb, in combination with an electron conductor comprising palladium. (Col. 3, lines 1-14) The reference specifically or inherently meets each of the claimed limitations. The reference is anticipatory.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-6 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wachsman et al. (U.S. Pat 6,235,417 hereinafter, "Wachsman") in view of Guitton et al. (FR Pat. 2,547,678 hereinafter, "Guitton").

Wachsman is relied upon as set forth above. With respect to instant claims 2-6 and 15-16, Wachsman does not explicitly disclose the mixed electron conductor is obtained by carbonizing at least one selected from a group consisting of aliphatic hydrocarbon, aromatic hydrocarbon and derivatives of the aliphatic hydrocarbon and the aromatic hydrocarbon.

However, Guitton disclosure of a positive electron for rechargeable battery cells comprising of acetylene black (a carbonaceous material), gamma manganese oxide and a proton conductor (Abstract). The proton conductor contains mineral acids, phosphorus and the acid uranyl phosphate crystalline (Para. 8, 9 and 12). It would have been obvious to a person of ordinary skill in the art to have a reasonable expectation of success, because such a carbonaceous material would consists of aliphatic hydrocarbon or aromatic hydrocarbon. Furthermore, the electron conductor would have had consecutive carbon-carbon bonds including a carbon-carbon double bond. The

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reference specifically or inherently read on the claims 2-6 and 15-16. The burden is upon the applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

6. Claims 8-11 are rejected 35 U.S.C. 103(a) as being unpatentable over Guitton et al. (FR Pat. 2,547,678 hereinafter, "Guitton").

Regarding claims 8-11, although Guitton generally discloses a mixed conductor wherein an electron conductor made of an inorganic material obtained by carbonizing an organic material is fixed to a proton conductor made of an inorganic material. The two layers being solidified together under the effect of pressure (Abstract), the reference does not require these components with sufficient specificity to constitute anticipation.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have formulated a mixed conductor, as taught by Guitton, which an electron conductor is solidified (i.e. covalent bond and intercalation) to a proton conductor as disclosed and taught by Guitton. Therefore, one of ordinary skill in the art would have had a reasonable expectation of success, because such a mixed conductor is expressly suggested by the Guitton disclosure and therefore is an obvious formulation.

7. Claims 12-14 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guitton et al. (FR Pat. 2,547,678 hereinafter, "Guitton") in view of Wu et al. (U.S Pub 2003/0108785 hereinafter, "Wu").

Guillon is relied upon as set forth above. With respect to instant claim 17, Guillon discloses a mixed conductor producing method with noble metal catalyst (Abstract). However, Guillon does not explicitly disclose the mixed conductor comprising a third step of burning the product.

Wu discloses the mixed conductor producing method according to claim 12, the mixed conductor comprising a third step of heating (i.e. burning) the product (Page 5, [0063]).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have formulated a mixed conductor with noble metal and heating the product, as taught by Guillon in view of Wu. Therefore, one of ordinary skill in the art would have had a reasonable expectation of success, because such a mixed conductor is expressly suggested by the Guillon in view of Wu to provide a method of producing carbon electrodes for ultracapacitor application.

Regarding claim 12, Wu further discloses a method for producing a mixed conductor comprising: a first step of obtaining a high molecular precursor by mixing and polymerizing at least one selected from a group consisting of aliphatic hydrocarbon, aromatic hydrocarbon and derivatives of the aliphatic hydrocarbon and the aromatic hydrocarbon with a proton conducting material (Page 3, [0043]); and a second step of burning the high molecular precursor obtained in the first step under an inert atmosphere (Page 5, [0063]).

Regarding claim 13, Wu further discloses a method for producing a mixed conductor comprising: a first step of obtaining a high molecular precursor by polymerizing at least one selected from a group consisting of aliphatic hydrocarbon, aromatic hydrocarbon and derivatives of the aliphatic hydrocarbon and the aromatic hydrocarbon, and mixing a proton conducting material into said at least one upon polymerization thereof (Page 3, [0043]); and a second step of burning the precursor obtained in the first step under an inert atmosphere (Page 5, [0063]).

Regarding claim 14, Wu further discloses a mixed conductor producing method wherein an organic compound is bound or mixed with a compound having movable protons to obtain a high polymer precursor, and said high polymer precursor is carbonized to thereby impart electron conduction to the precursor (Page 3, [0043]).

Regarding claim 18, Wu further discloses the mixed conductor producing method according to claim 12, wherein the first step comprises heating the high molecular precursor or heating the high molecular precursor under a pressurized condition (Page 5, [0063]).

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh T. Nguyen whose telephone number is (571)

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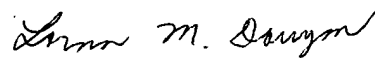
272-8082. The examiner can normally be reached on Monday-Friday 8:00-5:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on (571) 272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Khanh T. Nguyen  
Examiner  
01/17/2007



LORNA M. DOUYON  
PRIMARY EXAMINER